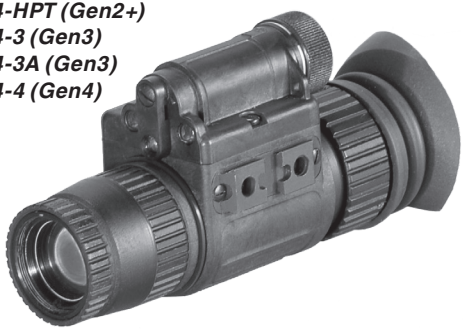
ATN NVM14

Mfg's P/Ns:

ATN NVM-14-2 (Gen2+)
ATN NVM-14-2I (Gen2+)
ATN NVM-14-CGT (Gen2+)
ATN NVM-14-HPT (Gen2+)
ATN NVM-14-3 (Gen3)
ATN NVM-14-3A (Gen3)
ATN NVM-14-4 (Gen4)



operators's manual

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AMERICAN TECHNOLOGIES NETWORK CORP.

Manual (NVM14-004) Revision 4 - February 2008

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SAFETY SUMMARY

CAUTIONS

• The ATN NVM-14 is a precision optical instrument and must be handled carefully at all times to prevent damage.

• Do not scratch the external lens surfaces or touch them with your fingers.

• Wiping demisting shield with lens paper while wet or with wet lens paper can damage the coating.

• To protect the image intensifier, keep the lens cap on the objective lens when the monocular is not in use or when checked out in daylight conditions.

• The IR illuminator is a light that is invisible to the unaided eye for use during conditions of extreme darkness. However, the light from the illuminator can be detected by others when using night vision devices.

• If you use the rubber eyecaps for a long period of time, you may suffer skin inflammation. If you develop any symptoms, consult a doctor immediately.

NOTES

• At operating temperatures below –20°C (–4°F), alkaline batteries are not recommended, as operating life will be severely reduced. Lithium-iron disulfide 1.5V AA batteries or equivalent should be used below –20°C (–4°F).

• The purpose of the illuminator is for viewing at close distance up to 3 meters when additional illumination is needed.

EQUIPMENT LIMITATIONS

To avoid physical and equipment damage when using the ATN NVM-14, carefully read and understand the following safety precautions.

• The equipment requires some night light (moonlight, starlight, etc.) to operate. The level of performance depends upon the level of light.

• Night light is reduced by passing cloud cover, while operating under trees, in building shadows, etc.

• The equipment is less effective viewing into shadows and other darkened areas.

• The equipment is less effective through rain, fog, sleet, snow or smoke.

• The equipment will not “see” through dense smoke.

TABLE OF CONTENTS

Section	Title	Page
	Safety Summary	a
	Table Of Contents	i
	List of Figures	ii
	List of Tables	iii
	How To Use This Manual	iv
Section I	General Information	1-1
II	Equipment Description	2-1
III	Mounting Procedures	3-1
IV	Operating Procedures	4-1
V	Operational Defects	5-1
VI	Maintenance	6-1
Appendix A	End Item Components	A-1
Appendix B	Repair Parts List	B-1
	Index	IND-1
	For Technical Information	INFO-1

LIST OF FIGURES

Figure	Title	Page
1-1	Multi-Use Night Vision monocular	1-2
2-1	ATN NVM-14 Major Components	2-4
2-2	ATN NVM-14 Optional Components	2-4
3-1	Attaching ATN NVM-14 to Head Mount	3-2
3-2	Attaching ATN NVM-14 to Helmet Mount	3-3
3-3	Attaching ATN NVM-14 to Weapon Mount	3-4
3-4	Mounting the ATN NVM-14 to a scope	3-5
3-5	Adapter for using ATN 3.5x26 scope	3-6
3-6	Mounting the Picatinny Adapter to the ATN NVM-14	3-6
3-7	Mounting camera to the ATN NVM-14	3-7
3-8	Mounting camcorder to the ATN NVM-14	3-7
3-9	Attaching ATN NVM-14 to PVS-7 Adapter	3-8
3-10	Attaching ATN NVM-14 to PVS-7 Headmount	3-9
3-11	Mounting 3x and 5x Lens to the ATN NVM-14	3-9
4-1	CR123A Battery Installation	4-3
4-2	AA Battery Installation	4-4
4-3	Mechanical Functions	4-5
4-4	Infrared (IR) Illuminator Operations	4-6
5-1	Shading	5-2
5-2	Edge Glow	5-3
5-3	Bright Spots and Emission Points	5-4
5-4	Fixed Pattern Noise	5-5
5-5	Chicken Wire	5-6
6-1	Neckpad Reinstallation	6-11
6-2	Lacing the Sliding Bar Buckle	6-12
6-3	Maintenance/Replacement of the tube in the NVM-14	6-13

LIST OF TABLES

Table	Title	Page
2-1	ATN NVM-14 Major Components	2-5
4-1	Battery Life	4-2
6-1	Preventive Maintenance Checks and Service for the ATN NVM-14	6-2
6-2	Operator Troubleshooting for the ATN NVM-14	6-8
A-1	ATN NVM-14 End Item Components	A-1
B-1	ATN NVM-14 Repair Parts List	B-1

HOW TO USE THIS MANUAL

USAGE

You must familiarize yourself with the entire manual before operating the equipment. Read the complete maintenance task before performing maintenance and follow all **WARNINGS, CAUTIONS,** and **NOTES.**

MANUAL OVERVIEW

The manual contains sections for Operating and Maintaining the Multi-Use night vision monocular ATN NVM-14.

Components of End Item are in **Appendix A**.

Repair Parts List is in **Appendix B.**

SECTION I

GENERAL INFORMATION

Figure 1-1
ATN NVM-14 - Multi-Use night vision monocular

1-1 GENERAL INFORMATION

A. TYPE OF MANUAL

Operator (Including Repair Parts List).

B. MODEL NUMBER AND BASIC DESCRIPTION

ATN NVM-14 – Multi-Use Night Vision monocular

C. SUPPLIER

American Technologies Network Corp.

20 South Linden Ave. Unit 1B,

South San Francisco, CA 94080 USA

D. PURPOSE OF EQUIPMENT

To provide the user with the ability to observe at night under moonlight and starlight conditions. The ATN NVM-14 can be handheld, head mounted, helmet mounted or weapon mounted to enable walking, surveillance, security, map reading, vehicle maintenance, and administering first aid. The unit allows for horizontal and vertical adjustments when head or helmet mounted and is also equipped with an infrared light-emitting source.

1-2 WARRANTY INFORMATION

This item shall conform to design, manufacturing, and performance requirements and be free from defects in material and workmanship for a period of two (2) years from the date of acceptance. If item is defective, notify ATN or point of purchase contact.

1-3 TECHNICAL INFORMATION

For technical information contact ATN Corp. directly at (650) 989-5100, or info@atncorp.com or your point of purchase contact.

1-4 LIST OF ABBREVIATIONS

BAT - Battery
Illum - Illuminator
IR - Infrared
mm - Millimeters
NVG's - Night Vision Goggles

SECTION II

EQUIPMENT DESCRIPTION

2.1 SYSTEM DESCRIPTION

The ATN NVM-14 is a hand-held, head-mounted, helmet-mounted, or weapon-mounted night vision system that enables walking, short-range surveillance, map reading, vehicle maintenance, and administering first aid in both moonlight and starlight. Each unit allows for vertical adjustment (by using head straps), fore-and-aft adjustment, objective lens focus, and eyepiece focus. The device is also equipped with an infrared light-emitting source.

NVM-14 Night Vision monocular utilizes the principle of intensification of the residual light which is reflected from the surrounding objects. The optical system of the monocular consists of: an objective lens, an image intensifier tube and an eyepiece.

Even under unsteady brightness conditions, Automatic Brightness Adjustment System always keeps the IIT brightness level constant.

The Automatic Protective System controls the existing illumination level through the photo receiver. If the illumination level surpasses 100-300 lx for the following 10 seconds, the monocular will shut off automatically

Built-in IR Illuminator makes it possible to observe the objects when the monocular works in the conditions of low light or total darkness.

The eyepiece incorporates several LED indicators:

- RED – serves as an IR Illuminator Indicator and an Battery Low Indicator at a time. IR is on when the indicator light becomes stable. If the indicator light starts flickering, it means there might be about 20% of battery charge left.

- GREEN – serves as an Excessive Brightness Indicator. If the bright light remains unchanged for over 10 seconds after the indicator turns on, the monocular will automatically shut-off. If you move the unit away from the bright/excessive light the unit will turn back on again.

2.2 WEIGHT, DIMENSIONS, AND PERFORMANCE

WEIGHT AND DIMENSION	
Weight (with battery)	335 grams
Length	140 mm
Width	50 mm
Height	69 mm
PERFOMANCE	
Magnification	1X
f-Number	1.2
Field of View	40 degrees
Eyepiece Diopter Adj.	-6 to +2
Eye Relief	25 mm
Focusing range	0,25m to infinity
Voltage	3.0 VDC or 1.5 VDC
Power Requirements	1 CR123A or 1 AA
IR Illumination Range	20 meters
CONTINUOUS OPERATION	
1 CR123A battery	40 hours

2.3 DESCRIPTION OF MAJOR COMPONENTS

Figure 2-1
ATN NVM-14 Major Components

Figure 2-2
ATN NVM-14 Optional Components

TABLE 2-1 ATN NVM-14DNS MAJOR COMPONENTS

ITEM	DESCRIPTION
Kit Components	
1	Multi-Use Night Vision monocular
2	Lens Cap
3	Eye-cup
4	Soft Carrying Case
5	Operators Manual
6	Battery 123A Lithium
7	Battery AA Alkaline
8	Battery Adapter
9	Neck Cord
Optional Components	
1	3X Afocal Lens
2	5X Afocal Lens
3	Camera/Camcorder Adapter
4	Lens adapter for ITT 3X and 5X Lenses
5	Demist Shield
6	Sacrificial Window
7	IR-450 IR illuminator
8	Headmount Adapter for PVS7 Headmount Assembly
9	Dual Bridge Adapter for PVS7 Headmount Assembly
10	Headmount Assembly
11	Flip-up Helmet Mount
12	Brow Pads
13	Picatinny Adapter
14	Weapon Mount Piccatiny/Mil 1913
15	Adapter for using NVM-14 with the ATN 3.5x26 riflescope
16	Scope Adapter Mount with inserts
17	Shoulder Strap
18	Hard Shipping/Storage Case

STANDARD KIT COMPONENTS

1) Multi-Use Night Vision monocular

The monocular night vision device with 1x magnification.

2) Lens Cap

A cap used to protect the lens and for testing the unit in daylight.

3) Eye-cup

A rubber cup used to protect eyepiece and for operator comfort.

4) Soft Carrying Case

A protective bag used for storing of ATN NVM-14 and accessories.

5) Operators Manual

Provides equipment description, use of operator controls and preventative maintenance checks and service.

6) Battery 123A Lithium

A single, 123A lithium battery used to power the unit.

7) Battery AA Alkaline

A single, standard AA alkaline battery used to power the unit.

8) Battery Adapter

Allows the ATN NVM-14 to accept the 123A Lithium battery used to power the unit.

OPTIONAL COMPONENTS

1) 3X Afocal Lens

Attaches to the ATN NVM-14 for enhanced range performance; but, reduces the field of view to 13 deg.

2) 5X Afocal Lens

Attaches to the ATN NVM-14 for enhanced range performance; but, reduces the field of view to 8 deg.

3) Camera/Camcorder Adapter

This adapter attaches to the ATN NVM-14 eyepiece for collection of imagery from the ATN NVM-14.

4) Lens Adapter (option for ITT lenses only)

This item for mount 3X or 5X Afocal lens (ITT part #A325639/2750SJ) to the ATN NVM-14.

5) Demist Shield

Used to prevent eyepiece lenses from becoming fogged.

6) Sacrificial Window

A replaceable window supplied to protect the objective lens during operation in adverse conditions.

7) **IR-450 IR illuminator**

450 mW infra-red illuminator is powerfull for long range night vision in the total darkness.

8) Headmount Adapter for PVS7 Headmount Assembly

This item allows the attachment of the ATN NVM-14 to the PVS7-headmount or PVS7-helmet mount.

9) Dual Bridge Adapter for PVS7 Headmount Assembly

Adapter that allows the ATN NVM-14 to be attached to in a binocular configuration to the PVS7-headmount or PVS7-helmet mount.

10) Headmount Assembly

Adjustable universal assembly that secures the ATN NVM-14 to the operator's head providing hands free operation.

11) Flip-up Helmet Mount

Provides mount interface for the ATN NVM-14 to a range of ballistic helmets.

12) Brow Pads

Changeable pads for secure head mount fit.

13) Picatinny Adapter

1,5" Picatinny rail for additional lighting, laser and other mission critical tools.

14) Weapon Mount

Small arms adapter that allows the ATN NVM-14 to be mounted on a weapon using Piccatinny or Mil 1913 rail.

15) Adapter for using NVM-14 with the ATN 3.5x26 riflescope

Adapter for using the ATN NVM-14 with the ATN 3.5x26 riflescope.

16) Scope Adapter Mount with inserts

Day/Night System Flip-up Adapter with Inserts with inserts for variety of scopes/telescopes.

17) Shoulder Strap

18) Hard Shipping/Storage Case

A protective case used for shipping/storing of ATN NVM-14 and accessories.

SECTION III

MOUNTING PROCEDURES

3.1 MOUNTING PROCEDURES

A. MOUNTING THE ATN NVM-14 TO A HEADMOUNT

To mount the ATN NVM-14 to a headmount, perform the following:

1. Loosen the screw (A). Push the button (B) and insert the rail of the NVM-14 into the socket (C) of the headset.
2. Place the headmount with NVM-14 onto a head.
3. Loosen the screw (A) and move the unit along the rail for eye relief adjustment.
4. The NVM-14 headmount has a flip-up mechanism. Push the button (D) on the side of mount and lift the unit up until the unit fixates in the top position. When the device is placed in the top/up position it will turn off automatically.
5. Push the same button (D) to lower NVM-14 to the viewing position. Turn the device on for continuation of the operation.
6. The NVM-14 can be placed onto the right or left eye. In order to readjust the monocular for use with the other eye, take the unit off the adapter, turn the unit to other side (for 180°) and mount it on the headmount adapter through the Picatinny rail on this side. Push the button (E) and move the device along the slide-rail (F) for comfortable position.

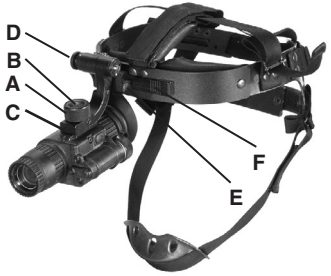

Figure 3-1
Attaching ATN NVM-14 to Head Mount

B. MOUNTING THE ATN NVM-14 TO A HELMET

Attachment of ATN NVM-14 to a standard PASGT helmet. The Helmet mount fits securely onto helmet via a rugged strapping device and grooved hooks. With helmet mount, the NVM-14 can be positioned directly in front of user's eyes or flipped up out of viewing position.

1. Install the mount onto helmet as shown on the picture.
2. Tighten and fixate the straps (A)
3. Attach the monocular to the rail.
4. Loosen screw (C). Push button (B) and insert the bracket of the NVM-14 into rail (D) of the helmet mount.
5. Place the helmet with NVM-14 onto head.
6. Loosen the screw (C) and move the unit for proper eye relief adjustment.
7. The NVM-14 helmet mount has a flip-up mechanism. Push the button (E) on the side of mount and lift the unit up until the unit fixates in the top position. When the device is placed in the top/up position it will turn off automatically.
8. Push the same button (E) to lower NVM-14 to viewing position. Turn the device on for continuation of the operation.
9. The NVM-14 can be placed onto the right or left eye. In order to readjust the monocular for use with the other eye, take the unit off the headmount adapter, turn the unit to other side (for 180°) and mount it on the adapter through the Picatinny rail on this side. Push the button (E) and move the device along the slide-rail (F) for comfortable position.

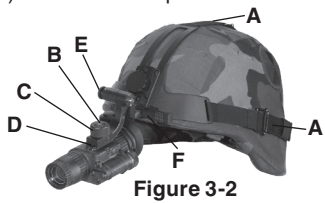

Figure 3-2
Attaching ATN NVM-14 to HImet Mount

CAUTION

It is recommended that the eyecup be replaced with the eye-guard during weapon-mounted use.

NOTE

The ATN NVM-14 is not a weapon sight, however, it can be used in conjunction with a collimated dot sight or laser aiming device.

C. MOUNTING THE ATN NVM-14 TO THE WEAPON

To mount the ATN NVM-14 perform the following:

1. Loosen the clamping knob on the weapon mount. Position the monocular mount on the weapon's mounting rail, adjust the fore/aft position of the monocular as necessary by loosening the clamping knob and repositioning the weapon mount on the rail. Tighten by turning the clamping knob).
2. Align the monocular and the weapon mount. Slide the monocular rearwards until the alignment boss aligns with the alignment groove on the weapon mount. Push until the monocular locks into the weapon mount (see figure 3-1).

Figure 3-3
Attaching ATN NVM-14 to Weapon Mount

D. MOUNTING THE ATN NVM-14 TO A SCOPE OR TELESCOPE

The NVM-14 may be mounted to a variety of daytime scopes/ telescopes utilizing the Flip-up Scope Adapter Mount.

1. Loosen the adapter fixing screws (A).

2. Put the insert into the adapter (ATN supplies inserts of different sizes for their coupling with 38 mm to 43 mm eyepieces).

3. Now attach the monocular to the bracket (B). You can push the monocular rail into the bracket guide (C) and then take it off the bracket only when you loosen the fixation knob (D) holding the button (2) pressed at a time. With the fixation knob (D) tightened you secure the monocular on the bracket.

4. Push a daytime riflescope or telescope eyepiece into the adapter attached to the monocular, making sure a small space is left between the scope eyepiece and the monocular front lens.

5. Tighten the adapter screw(A) securely.

6. By pressing button (F) on the adapter you can raise the monocular 180 degrees upward in order to work with the daytime scope only.

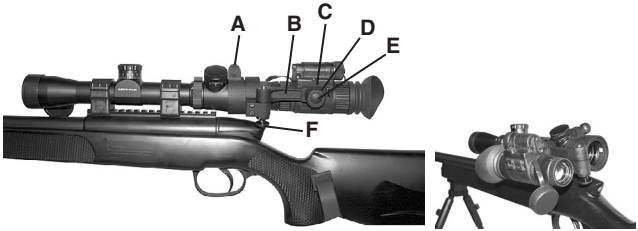

Figure 3-4
Mounting the ATN NVM-14 to a scope

E. MOUNTING ATN NVM-14 ON TO ATN 3.5X26 SCOPE

There is a special adapter for using the ATN NVM-14 with the ATN 3.5x26 riflescope.

To mount the ATN NVM-14 perform the following:

1. Loosen the the mounting screw (A) of adapter.

2. Mount the adapter onto Picatinny rail of the ATN 3.5x26 riflescope.

3. Tighten the mounting screw of adapter.

4. Loosen the screw (B) of adapter. Push the button (C) and insert the bracket of the NVM-14 into the rail of the adapter.

5. Tighten the screw (B).

Figure 3-5
Adapter for using ATN 3.5x26 scope

F. MOUNTING THE PICATINNY ADAPTER TO THE ATN NVM-14

Mount Picatinny adapter(A) onto one of the rails on the monocular. Tighten two fixing screws(B) of the adapter.

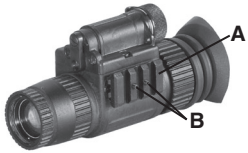

Figure 3-6
Mounting the Picatinny Adapter to the ATN NVM-14

G. MOUNTING CAMERA/CAMCORDER TO THE ATN NVM-14

1. Screw Camera Adapter(A) into the front lens of a photographic camera (thread M52x0.75) or a video camera (use adapter ring(C) threaded M37x0.75).

2. Remove the rubber eyecup off the monocular.

3. Connect the adapter with the eyepiece and gently tighten 3 fixing screws(B) on the adapter.

Figure 3-7
Mounting Camera to the ATN NVM-14

Figure 3-8
Mounting Camcorder to the ATN NVM-14

H. MOUNTING IR-450 TO THE ATN NVM-14

IR-450 may be mounted on the monocular through the Picatinny adapter.

1. Install the Picatinny Adapter on one of the monocular rails (See 3.1.F).

2. Loosen the IR-450 fixing screw.

3. Mount the IR-450 on the Picatinny Adapter and tighten the fixing screw.

I. MOUNTING THE ATN NVM-14 TO THE PVS-7 HEAD/HELMET MOUNT

To mount the ATN NVM-14 to a head/helmet mount, perform the following:

1. Attach the PVS- 7 headmount adapter (A) to the rail (B) of ATN NVM-14.

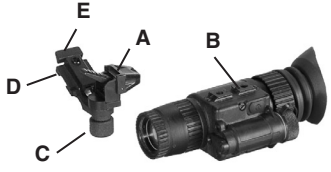

Figure 3-9
Attaching ATN NVM-14 to PVS-7 Adapter

With this adapter you may see through the eyepiece using either right or left eye. To change the viewing eye, loosen the nut(C) and turn the adapter(D) in the point of connection to match with another eye. Tighten the nut(C) anew. To disconnect the adapter press the upper clip(E).

2. Align the headmount adapter and the head/helmet mount. Slide the monocular rearwards until the alignment boss aligns with the alignment groove on the head/helmet mount. Push until the monocular locks into the head/helmet mount.

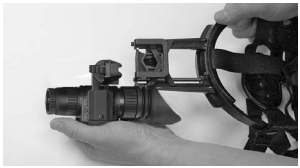

Figure 3-10
Attaching ATN NVM-14 to PVS-7 Headmount

J. MOUNTING 3X OR 5X LENS TO THE ATN NVM-14

The 3x lens is an afocal lens and screws into the existing lens.

The 5x lens requires removing the 1x lens. Unscrew the objective lens and screw 5x lens to the free place.

Figure 3-11
Mounting 3x and 5x Lens to the ATN NVM-14

K. MOUNTING 3X OR 5X LENS (ITT) TO THE ATN NVM-14

Screw Lens Adapter into the front lens of the monocular. Then screw the 3x or 5x IIT Afocal Lens into the threading of the Lens Adapter.

SECTION IV

OPERATING PROCEDURES

4.1 OPERATING INSTRUCTIONS

A. BATTERY INSTALLATION

CAUTION

To protect the image intensifier, keep the lens cap on the objective lens when the monocular is not in use or when checked out in daylight conditions.

NOTE

At operating temperatures below –20°C (–4°F), alkaline batteries are not recommended, as operating life will be severely reduced. Lithium-iron disulfide 1.5V A A batteries or equivalent should be used below –20°C (–4°F).

Table 4-1 Battery Life

Estimated Battery Life	
Battery Type	**Usage**
CR123A	>50 Hours
Standard AA	>25 Hours

The ATN NVM-14 operates with one AA battery or one CR123A battery when using the battery adapter.

Install CR123A batteries as follows:

1. Unscrew the battery cap (A) and insert the battery (B), observing the polarity as indicated.
2. Replace the battery cap (A) and screw cap hand tight.
3. Battery cap shell be assembled with battery adapter.

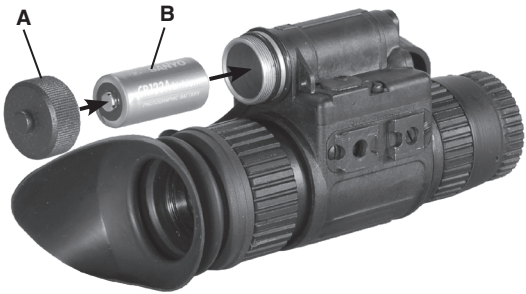

Figure 4-1
CR123A Battery Installation

Install standard AA batteries as follows:

1. Unscrew the battery cap (A).
2. Unscrew the CR123 battery adapter(B) from the cap.
3. Insert AA battery and, observing the polarity as indicated.
4. Replace the battery cap and screw cap hand tight.

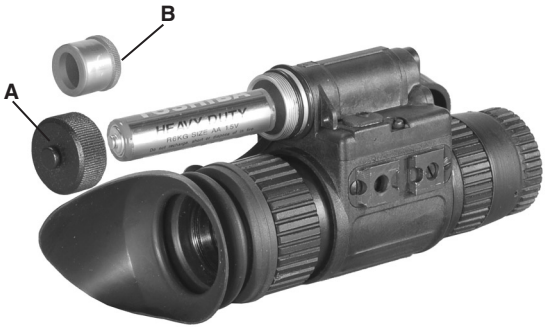

Figure 4-2
AA Battery Installation

B. MECHANICAL FUNCTIONS

The mechanical functions of the ATN NVM-14 allow for differences in the physical features of individual operators and provide for operating the system. These functions include the **On/Off/On IR control**, **eye relief** (see Section III Mounting Procedures – Headmount Adjustments), **diopter adjustment**, **objective lens focus,** and **IR illuminator focusing**. These mechanical controls are identified in Figure 4-3.

Operation button (A) switches both the monocular and the IR Illuminator on/off.

To turn the monocular on, press button (A) by one short push, to turn it off – press button (A) by another short push.

You may adjust the unit diopter by rotating the eyepiece ring (B). The total dioptric range is covered in 1/2 revolution.

To make the unit focus appropriate for different distances you should rotate the front lens ring (C). The total focusing range is covered in 1/3 ring revolution.

The ring (D) serves to fix the “infinity” position of the front lens focus.

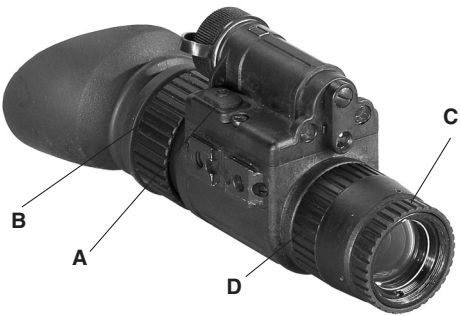

Figure 4-3
Mechanical Functions

C. INFRARED (IR) ILLUMINATOR OPERATIONS

CAUTION

The IR illuminator is a light that is invisible to the unaided eye for use during conditions of extreme darkness. However, the light from the illuminator can be detected by others that are using night vision devices.

NOTE

The purpose of the illuminator is for viewing at close distance up to 3 meters when additional illumination is needed.

IR Illuminator gets activated when the monocular is already on by holding button (A) pressed for 1,5-2 seconds. A red light appears in the eyepiece to indicate that the IR illuminator is operating.

You may focus the IR light for additional distance by placing the focusing lens of the IR pivot plate (B) onto the window of the IR illuminator (C). This will extend the range the useful range of the IR.

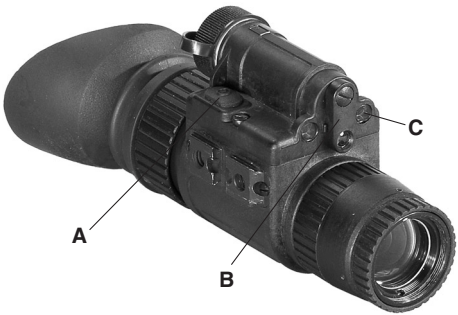

Figure 4-4
Infrared (IR) Illuminator Operations

SECTION V

OPERATIONAL DEFECTS

5-1 ZEROING OPERATIONAL DEFECTS

Operational defects relate to the reliability of the image intensifier and are an indication of instability. If identified, they are an immediate cause for rejecting the ATN NVM-14. They include shading, edge glow, flashing, flickering, and intermittent operation.

A. SHADING

If shading is persistent, you will not see a fully circular image (Figure 5-1). Shading is very dark and you cannot see an image through it. Shading always begins on the edge and migrates inward eventually across the entire image area. Shading is a high contrast area with a distinct line of demarcation. Contact ATN or point of purchase for warranty/repair procedures.

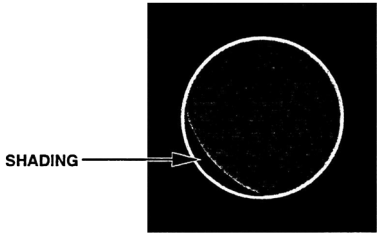

Figure 5-1
Shading

NOTE

Make sure the shading is not the result of improper exit pupil position.

B. EDGE GLOW

Edge glow is a bright area (sometimes sparkling) in the outer portion of the viewing area (see Figure 5-2). To check for edge glow, block out all light by cupping a hand over the lens. If the image tube is displaying edge glow the bright area will still show up. Contact ATN or point of purchase for warranty/repair procedures.

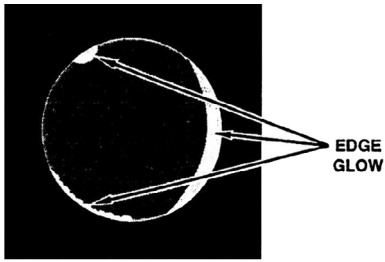

Figure 5-2
Edge Glow

C. FLASHING, FLICKERING, OR INTERMITTENT OPERATION

The image may appear to flicker or flash. If there is more than one flicker, check for loose battery adapter or weak battery. Contact ATN or point of purchase for warranty/repair procedures.

D. COSMETIC BLEMISHES

These are usually the result of manufacturing imperfections that do not affect image intensifier reliability and are not normally a cause for warranty or repair work. However, some types of blemishes can get worse over time and interfere with the

usability of the device. If you believe a blemish is a cause for rejection, warranty or repair please ATN or point of purchase for warranty/repair procedures.

1. Bright Spots.

A bright spot is a small, non-uniform, bright area that may flicker or appear constant (Figure 5-3).

Not all bright spots make the ATN NVM-14 rejectable. Cup your hand over the lens to block out all light. If the bright spot remains, return the ATN NVM-14. Bright spots usually go away when the light is blocked out. Make sure any bright spot is not simply a bright area in the scene you are viewing. **Bright spots are acceptable if they do not interfere with the ability to view the outside scene.**

2. Emission Points.

A steady or fluctuating pinpoint of bright light in the image area and does not go away when all light is blocked from the objective lens of the monocular (Figure 5-3). The position of an emission point within the image area does not move. Not all emission points make the ATN NVM-14 rejectable. Make sure any emission point is not simply a point light source in the scene

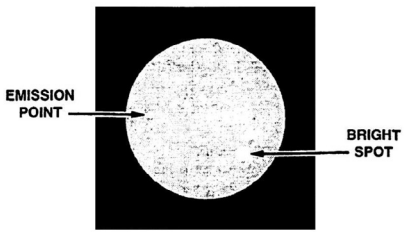

Figure 5-3
Bright Spots and Emission Points

you are viewing. **Emission points are acceptable if they do not interfere with the usability of the device.**

3. Black Spots.

These are cosmetic blemishes in the image intensifier or dirt or debris between the lenses. Black spots are acceptable as long as they do not interfere with viewing the image. **No action is required if this condition is present unless the spots interfere with the usability of the device.**

4. Fixed-Pattern Noise.

This is usually a cosmetic blemish characterized by a faint hexagonal (honeycomb) pattern throughout the viewing area that most often occurs at high light levels or when viewing very bright lights (See Figure 5-4). This pattern can be seen in every image intensifier if the light level is high enough. **This condition is acceptable as long as the pattern does not interfere with viewing the image and usability of the device.**

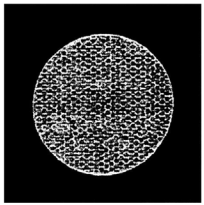

Figure 5-4
Fixed-Pattern Noise

5. Chicken Wire.

An irregular pattern of dark thin lines in the field of view either throughout the image area or in parts of the image area (See Figure 5-5). Under the worst-case condition, these lines will form hexagonal or square-wave shaped lines. This is typically viewed in high light conditions. **No action is required if this condition**

is present unless it interferes with the viewing the image and interferes with the users usability of the device.

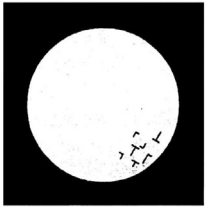

Figure 5-5
Chicken Wire

SECTION VI

MAINTENANCE

6-1 PREVENTIVE MAINTENANCE

TABLE 6.1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR ATN NVM-14

Item No.	Interval	Location Item to Check/Service	Procedure	Not functioning at optimal level If
1.	Before	Maintenance	• Open carrying case, inventory items. • Previously recorded faults on maintenance records.	Not Current. Fault not corrected.
			MONOCULAR	
2.	Before/After	Optical Surfaces	Inspect lens for dirt, fingerprint residue, chips, or cracks. If necessary, clean and dry lens with water and lens tissue.	Scratches or chips hinder vision with monocular turned on, or if cracks are present.
3.	Before/After	External Surfaces	Inspect for cracks or damage. Scratches and gouges are OK if operation is not affected	Cracked or damaged.

TABLE 6.1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR ATN NVM-14 (CONT.)

Item No.	Interval	Location Item to Check/Service	Procedure	Not functioning at optimal level If
4.	Before/After	Battery Adapter / Compartment	Check to make sure battery adapter is present. Remove battery adapter and inspect for corrosion, moisture, corroded or defective contacts, and that o-ring is present.	Adapter is missing, contacts damaged or corroded, or o-ring is missing.
5.	Before/After	Diopter Adjustment Ring	Rotate diopter adjustment ring to make sure the eyepiece is not too tight or too loose.	Binding, not moving freely or too loose.
6.	Before/After	Eyecup	Inspect for dirt, dust, and cracked or torn cup. Inspect for bent, broken or improperly fitting eyecup. If necessary, clean with water.	
7.	Before/After	Objective Lens Focus Ring	Rotate objective lens focus ring to ensure free movement.	Binding or not moving freely.
8.	Before/After	Lens Cap	Inspect for cracked, torn, or missing lens cap.	

TABLE 6.1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR ATN NVM-14 (CONT.)

Item No.	Interval	Location Item to Check/Service	Procedure	Not functioning at optimal level If
9.	Before/After	Viewed Image	Refer to Section V – Operation Defects – to inspect for operational defects.	Flickering, flashing, edge glow, or shading is observed.
10.	Before/After	Strap, Pads	Inspect for cuts, tears, fraying, holes, cracks, or defective fasteners.	Damage causes straps or pads to be unserviceable.
11.	Before/After	Socket	Inspect for dirt, dust, or corrosion. Insert ATN NVM-14 latch into socket to verify secure attachment of ATN NVM-14 to headmount. If necessary, clean socket with water.	Damaged, latch won't work or too loose.
12.	For and Aft Adjustments	Socket	Press the socket-release button and check for free motion. Inspect for damage.	Binding, damaged or non-operational slide mechanism.

TABLE 6.1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR ATN NVM-14 (CONT.)

Item No.	Interval	Location Item to Check/Service	Procedure	Not functioning at optimal level If
13.	Before/After	Headmount / Helmet Mount Adapter	Inspect for dirt, dust, or corrosion. Insert adapter into headmount or helmet mount socket to verify secure attachment.	Damaged, will not latch securely.
14.	Before/After	Small Arms Mount Adapter	IInspect for dust, dirt, or corrosion.	Damaged, will not mount to ATN NVM-14 or will not mount to weapon mount rail.

CAUTION

The demist coating on the demist shield can be damaged if cleaned while wet or cleaned with wet lens paper. Clean only when the demist shield is dry and only use dry lens paper.

TABLE 6.1 PREVENTIVE MAINTENANCE CHECKS AND SERVICES FOR ATN NVM-14 (CONT.)

Item No.	Interval	Location Item to Check/Service	Procedure	Not functioning at optimal level If
15.	Before/After	Demist Shield	Inspect for dirt, dust, scratches or damage. If necessary, clean when shield is dry with dry lens tissue only.	Damage or scratches hinder vision with ATN NVM-14 on.
16.	Before/After	Sacrificial Window	Inspect for dirt, dust, scratches, or damage. If necessary, clean.	Damage or scratches hinder vision with ATN NVM-14 on.
17.	Before/After	3X/5X Magnifier	Inspect optical surface for dirt, dust, scratches or cracks.	Damage or scratches hinder vision.
18.	Before/After	Carrying Case	Remove all items and shake out loose dirt or foreign material. Inspect for tears, cuts, excess wear or damage to mounting clips.	
19.	Before/After	Neck Cord	Inspect for cuts, tears, or excess wear or damaged clips.	

6-2 OPERATOR TROUBLESHOOTING

Table 6-2 llists common malfunctions that you may find with your equipment. Perform the tests, inspections, and corrective actions in the order they appear in the table.

This table cannot list all the malfunctions that may occur, all the tests and inspections needed to find the fault, or all the corrective actions needed to correct the fault. If the equipment malfunction is not listed or actions listed do not correct the fault, notify ATN or your point of Purchase.

TABLE 6.2 OPERATOR TROUBLESHOOTING FOR ATN NVM-14

Malfunction	Test or inspection	Corrective Action
1. Monocular fails to activate.	Press operation button. Check for defective, missing or improperly installed batteries.	Press button one short push. Replace batteries or install correctly.
2. IR illuminator fails to activate.	In a dark location with system turned on, activate IR. Visually check IR illuminator operation; scene should brighten.	If IR illuminator fails to activate, refer to higher level of maintenance.
3. IR indicator fails to activate.	Visual.	Refer to higher level of maintenance.
4. Poor image quality	• Check objective lens or eyepiece focus. • Check for fogging or dirt on lens.	•Refocus. •Clean lens surface. • If image quality is still poor, refer to higher level of maintenance.
5. Light visible around eyecup	• Check eye-relief distance. • Check eyecup for resiliency.	• Readjust for proper eye-relief distance. • If eyecup is defective, refer to higher level of maintenance.

TABLE 6.2 OPERATOR TROUBLESHOOTING FOR ATN NVM-14 (CONT.)

Malfunction	Test or inspection	Corrective Action
6. Diopter adjustment cannot be made	Check to see if the diopter adjustment ring is bent or broken	If damaged, refer to higher level of maintenance.
7. Battery adapter difficult to remove.	• Check for damaged battery adapter.	• If damaged, refer to higher level of maintenance.
8. Head straps cannot be tightened	Check for defective buckles, fasteners or straps.	If damaged, refer to higher level of maintenance.
9. Headmount or helmet mount socket and head/ helmet mount adapter latch does not catch.	• Check socket or latch for dirt. • Check socket or latch for damage.	• Clean socket and latch. • If damaged, return both headmount or head/helmet mount adapter to higher level of maintenance.
10. Helmet mount will not tighten to helmet.	Inspect mounting hardware for damage.	If damaged, refer to higher level of maintenance.

6-3 CLEANING THE ATN NVM-14

CAUTION

The ATN NVM-14 is a precision optical instrument and must be handled carefully at all times to prevent damage.

Do not scratch the external lens surfaces or touch them with your fingers.

Wiping demisting shield with lens paper while wet or with wet lens paper can damage the coating.

Clean monocular with water, if necessary, and dry thoroughly. Clean lenses with lens paper (and water, if necessary, except for demisting shield).

6-4 HEADMOUNT MAINTENANCE

A. BROWPAD REPLACEMENT

Replace the browpads when cracked, torn, or contaminated. Perform the following procedure to remove and replace the browpads.

1. Firmly grasp the headmount and remove the old browpad.

2. Gently press on the new browpad. Lightly smooth out any wrinkles in the new browpad.

B. NECKPAD REINSTALLATION

During operation of the monocular, it is possible for the neckpad to become separated from its position on the headband. Perform the following procedures to reinstall the neckpad.

1. Lift the upper headband strap retention tab (see Figure 6-1), allowing the neckpad strap to be inserted underneath.

2. Slip the neckpad strap all the way under the upper strap retention tab and then pull the lower part of the neckpad strap under the lower strap retention tab.

3. Repeat steps 1 and 2 for the other side of the headband and neckpad if necessary.

Figure 6-1
Neckpad Reinstallation

C. LACING THE SLIDING BAR BUCKLE

While donning and adjusting the headmount, it is possible for a strap to slip out of a slide fastener. Perform the following procedure to replace the strap and sliding bar buckle.

Thread the strap from the inside of the buckle over the moveable sliding bar (see Figure 6-2). Thread the strap back through the buckle but this time under the sliding bar and over the serrated part of the buckle.

Figure 6-2
Lacing the Sliding Bar Buckle

6-5 TUBE MAINTENANCE / REPLACEMENT

1. Unscrew the eyepiece (E) from the case of device (A).
2. Unscrew the lock ring (D) from the case of device.
3. Extract the light guide (C) from the case of device.
4. Extract the tube (B) to be replaced from the case of device (A).
5. Introduce the new tube (B) into the case of device (A).
6. Set the light guide (C) onto the place in the case.
7. Screw the lock ring (D) into the case of device.
8. Screw the eyepiece (E) into the case of device (A).

Figure 6-3
Maintenance/Replacement of the tube in the NVM-14

APPENDIX A

END ITEM COMPONENTS

TABLE A-1 ATN NVM-14 END ITEM COMPONENNENTS

ITEM	DESCRIPTION
1.	ATN NVM-14 Monocular Assembly (without Image Intensifier Tube)
2.	Swing Arm Interface, Head/Helmet
3.	Weapon Mount
4.	Operator Manual
5.	Demist Shield, Eyepiece
6.	Soft Carrying Case
7.	Sacrificial Window
8.	Should Strap
9.	Head Mont Assembly
10.	Brow Pad Assembly (Small)
11.	Brow Pad Assembly (Medium)
12.	Brow Pad Assembly (Large)
14.	Lens Cap
16.	Eye Cup Assembly
17.	CR123A 3.0V DC Battery, Lithium
18.	Battery Adapter for CR123A
19.	Battery (AA Alkaline)

APPENDIX B

REPAIR PARTS LIST

TABLE B-1 ATN NVM-14 REPAIR PARTS LIST

ITEM	DESCRIPTION	PART NO.
1.	Battery Cap Insert	NVM-138
2.	Lithium Battery	CR123A
ALT	AA Alkaline Battery	M30-044
3.	Purge Screw	7B315
4.	Battery Adapter	NVM-198
5.	Lens Cap	NVM-178
6.	Sacrificial Window	NVM-032
7.	Demist Shield	NVM-033
8.	Battery Cap Retainer	NVM-156
9.	Objective Lens Assembly	NVM-030
10.	Eyepiece Lens Assembly	NVM-035
11.	Head/Helmet Mount Adapter	NVM-042
12.	Ship/Storage Case	7B257-2
13.	Neck Cord	7B306
14.	Soft Carry Case	7B262
15.	Eyecup Assembly	7B422
16.	Operator Manual	NVM-015
17.	Shoulder Strap	7B267
18.	Headmount Assembly	7B268-A1
19.	Dual Bridge Adapter	
20.	Scope Adapter Mount	
21.	IR450	
22.	Picatinny Adapter	
23.	Camera Adapter	
24.	3X Lens	
25.	5X Lens	
26.	Lens Adapter	
27.	Helmet mount	

INDEX

A

ABBREVIATIONS, 1-4

B

BATTERY INSTALLATION, 4-2
BATTERY LIFE, 4-2
BLACK SPOTS, 5-5
BRIGHT SPOTS, 5-4

C

CAUTIONS, A, IV
CHICKEN WIRE, 5-7
CLEANING, 6-10
COSMETIC BLEMISHES, 5-4

D

DIOPTER ADJUSTMENT, 4-5, 6-3, 6-9

E

EDGE GLOW, 5-3, 6-4
EMISSION POINTS, 5-5
END ITEM COMPONENTS, A-1
EQUIPMENT LIMITATIONS, C
EYE RELIEF, 2-3, 4-5
EYEPIECE DIOPTER ADJ., 2-3

F

FIXED-PATTERN NOISE, 5-6
FLASHING, FLICKERING, OR INTERMITTENT OPERATION, 5-4
F-NUMBER, 2-3

G

GENERAL INFORMATION, 1-3

H

HEIGHT, 2-3

I

IR ILLUMINATION RANGE, 2-3
IR ILLUMINATOR, A, 4-6, 6-8

L

LENGTH, 2-3

M

MAGNIFICATION, 2-3
MAINTENANCE, 6-1, 6-8
- HEADMOUNT, 6-10
- PREVENTIVE, 6-2

MECHANICAL FUNCTIONS, 4-5
MOUNTING PROCEDURES, 3-2, 4-5

O

OBJECTIVE LENS FOCUS, 2-2, 4-5, 6-3
ON/OFF/ON IR CONTROL, 4-5
OPERATING INSTRUCTIONS, 4-2
OPERATIONAL DEFECTS, 5-2, 6-4
OPERATOR TROUBLESHOOTING, 6-7

P

POWER REQUIREMENTS, 2-3

R

REPAIR PARTS, B-1

S

SAFETY SUMMARY, A
SHADING, 5-2, 6-4
SYSTEM DESCRIPTION, 2-2

T

TECHNICAL INFORMATION, 1-4, INFO-1

V

VOLTAGE, 2-3

W

WARRANTY INFORMATION, 1-4
WEIGHT, 2-3
WIDTH, 2-3

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